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| 10/500,915      | 02/17/2005  | Tsuyoshi Kubota      | 90606.6             | 8404             |

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| EXAMINER |
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ZHU, WEIPING

|          |              |
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| ART UNIT | PAPER NUMBER |
|----------|--------------|

1793

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|-------------------|---------------|
| NOTIFICATION DATE | DELIVERY MODE |
|-------------------|---------------|

04/15/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JKEATING@KBIPLAW.COM  
uspto@kbiplaw.com

|                              |                                      |                                      |  |
|------------------------------|--------------------------------------|--------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/500,915 | <b>Applicant(s)</b><br>KUBOTA ET AL. |  |
|                              | <b>Examiner</b><br>WEIPING ZHU       | <b>Art Unit</b><br>1793              |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 11-19, 21-26 and 42-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-19, 21-26 and 42-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Status of Claims***

1. Claims 11-19, 21-26 and 42-46 are currently under examination, wherein claims 11, 18, 19, 21 and 22 have been amended and claims 42-46 have been newly added in applicant's amendments filed on January 30, 2008. The previously presented claim 20 and the non-elected claims 27-41 have been cancelled in the same amendment.

### ***Status of Previous Rejections***

2. The previous rejections of claim 11-26 under 35 U.S.C. 103(a) as being unpatentable over Fetouh (US 4,569,109) as stated in the Office action dated October 30, 2007 have been withdrawn in light of applicant's amendments filed on January 30, 2008. The new grounds of rejections have been established as follows:

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 11-19, 21-26 and 42-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fetouh ('109).

With respect to claims 11 and 16-19 and 21, Fetouh ('109) discloses a breaking and splitting structure of a connecting rod comprising a large end having a crank pin bore, the large end being broken and split into a main body section and a cap section such that the two sections having broken and split surfaces and the two sections being

Art Unit: 1793

secured together by bolts; wherein breaking starting notches (i.e. grooves as claimed in the instant claim 16) extending in the axial direction of the crank pin bore being formed in an inside circumferential surface of the crank pin bore of the large end (abstract and Figures 1-6).

Fetouh ('109) does not specify the lengths of the notches as claimed in the instant claims 11, 19 and 21; the shapes of the notches as claimed in the instant claims 17 and 18. However, it is well held that discovering an optimum value of a result-effective variable involves only routine skill in the art. In re Boesch, 617, F.2d 272, 205 USPQ 215 (CCPA 1980). In the instant case, the length and the shape of the notches are result-effective variables, because they would directly affect the degree of the bending deformation during the fracture and the additional machining required after the separation as disclosed by Fetouh ('109) (col. 2, lines 15-36). Therefore, it would have been obvious to one skilled in the art to have optimized the length and the shape of the notches of Fetouh ('109) in order to minimize the deformation and the additional machining. See MPEP 2144.05 II.

With respect to claims 12-15, Fetouh ('109) discloses hardening the surface of the material, at least that along the split planes, of the connecting rod by heat treatment to embrittle the material sufficiently to avoid excessive yielding when fractured (col. 4, lines 5-15), which reads on the claim features.

With respect to claims 22 and 44, Fetouh ('109) discloses two bolt holes as claimed and that the two ends of the notch extend across the line connecting the axes

of the bolt holes and extending in a direction substantially perpendicular to the axis of the crank hole as claimed (col. 3, lines 30-37 and Fig. 1).

With respect to claims 23, 42 and 45, Fetouh ('109) discloses (col. 3, lines 49-57 and Fig. 1) the notches are formed at the inner edges of the mating ends, along the split planes (i.e. the notches are formed along the intersection where the split surfaces and the inside circumferential surface of the crank pin bore meet), which reads on the claim limitation.

With respect to claims 24, 43 and 46, Fetouh ('109) does not limit the position of the bolt hole relative to the inside circumferential surface and outside wall of the crank pin bore as claimed in the instant claim 24. It would have been obvious to one of ordinary skill in the art at the time the invention was made to position the bolt hole in any appropriate location between the inside circumferential surface and outside wall of the crank pin bore with expected success, because Fetouh ('109) discloses that the bolt hole can be located anywhere between the inside circumferential surface and outside wall of the crank pin bore as long as it is feasible to bolt the cap section and the body section of the connecting rod of Fetouh ('109) properly (col. 3, lines 30-37 and Fig. 1).

With respect to claim 25, Fetouh ('109) discloses that notches are formed at the positions that are substantially coincident with the line connecting the axes of the bolt holes and extending in a direction substantially perpendicular to the axis of the crank hole as claimed (Figures 1 and 3).

With respect to claim 26, Fetouh ('109) discloses one end of the notch is positioned at one end of the crank pin bore in the axial direction thereof as claimed (col. 3, lines 49-57 and Fig. 1).

### ***Response to Arguments***

4. The applicant's arguments filed on January 30, 2008 have been fully considered but they are not persuasive.

The applicant argues that Fetouh ('109) does not teach anything at all about the specific length or shape of the notches and the deformation and the additional machining of Fetouh ('109) are not minimized by providing notches having a specific length and shape; that the fact that Fetouh ('109) teaches that the deformation and additional machining can be minimized without any notches being provided clearly indicates that the length and shape of the notches of Fetouh ('109) are not result-effective variables. In response, the examiner notes the arguments of the counsel cannot be relied upon as evidence. See MPEP 21206.02. Fetouh ('109) discloses that longitudinal notches are provided across the inner edges of the split planes on the opposite sides of the opening prior to fracturing to initiate fracture and positively locate the inner edge of the separated leg ends (col. 8, lines 37-41) and the disclosed method features bore starter notches and semicircular die expanders that minimize split plane and bore distortion (abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made that the characteristics of the notches including the location, length and shape are result-effective variables which would directly affect the degree of the bending deformation during the fracture and the additional machining

required after the separation as disclosed by Fetouh ('109) (col. 2, lines 15-36). The ground of rejection as stated in the Office action dated October 30, 2007 is proper and maintained.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Weiping Zhu whose telephone number is 571-272-6725. The examiner can normally be reached on 8:30-16:30 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1793


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/  
Supervisory Patent Examiner, Art  
Unit 1793

WZ

4/1/2008



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| <div>Application Number</div> <div></div> | Application/Control No. | Applicant(s)/Patent under Reexamination |  |
|  | 10/500,915              | KUBOTA ET AL.                           |  |
|  | Examiner                | Art Unit                                |  |
|  | WEIPING ZHU             | 1793                                    |  |